

**Please *insert* the ABSTRACT on a separate sheet as required by 37 CFR 1.72(b):**

The invention relates to a method and a device for the production of pure steam. A falling-film evaporator is used. Of the water-steam mixture leaving the evaporator unit, part of the water is collected at the bottom of the device, and a fraction mainly consisting of steam enters a rising spiral channel for the separation of impurities. In the periphery of the spiral channel apertures are provided for separating impurity-containing droplets, which condense on a surface outside the apertures. The liquid formed is removed from the device. The water phase collected at the bottom enters a recycle line connected to the feed end of the evaporator unit. Feed water is supplied to the recycle line to compensate for pure steam consumption.